NOTES ON AUSTRALIAN LYCAENIDAE. Part vi.

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(Plate xxv.)

[Read 29th August, 1928.]

Part v of these notes was published in These Proceedings for 1912, pp. 698-702, and in 1914 "The Butterflies of Australia", by Waterhouse and Lyell, in which the Australian Lycaenidae were thoroughly revised, was issued. Since 1914, only one new species has been described but several new subspecies have been found, and many important extensions of the ranges of known species require record. The localities given in this paper are additions to or amendments of those in "The Butterflies of Australia".

Candalides Hübner.

Verzeichniss bekannter Schmettlinge, 1816, 73.

The type of this genus is *xanthospilos* Hübner, and good figures of the upper and under sides of both sexes were given in the first volume of his "Sammlung Exotischer Schmetterlinge", pl. 99, but no locality was given. The dates of publication of Hübner's work have been fixed as 1806-1819 for the first volume, so, considering the early date, it is best to consider Sydney, where the species is very common, as the type locality.

Polyommatus hübneri Godart (*Encyclopédie Méthodique*, 1824, 677), of which the male is described from Timor, is the same species, but the locality given is incorrect. *Erina pulchella* Swainson (*Zoological Illustrations*, ii, 1834, pl. 134) is the same species. Swainson gives here an enlarged coloured illustration of the upper side and under side of a male; the locality given is Australia. Miskin (*Ann. Q'land Mus.*, i, 1891, 64) gives *Lycaena byzos* Boisduval as another synonym, but I will show later in this paper that this is not correct.

At the end of 1914, Mr. H. W. Simmonds found larvae of *xanthospilos* at Stanwell Park feeding on *Pimelea ligustrina*. I have had numerous larvae at different times feeding on this plant and also on *Pimelea linifolia* and they have a distinct resemblance to the larvae of *C. heathi*, *C. hyacinthina* and *C. absimilis*; the pupae also resemble the pupae of those three species in that they are much flattened, with the abdomen produced to lateral ridges and so strikingly different from the usual pupae of the Lycaeninae. In December the pupal duration is 11-14 days. Now that the larva and pupa of *C. xanthospilos* are known, and are so different from those of *Philiris ilias innotatus* Miskin, I have no hesitation in claiming that *Philiris* is a genus distinct from *Candalides* as I pointed out in These Proceedings, 1912, p. 699.

Candalides heathi Cox.

Lycaena heathi Cox, *Entomologist*, 1873, 402.—*Lycaena paradoxa* Guest, *Trans. Roy. Soc. S. Aust.*, 1882, 36.

The types of *heathi* came from Mt. Barker, near Adelaide, and of *paradoxa* from Balhannah, 15 miles ESE of Adelaide and the two descriptions undoubtedly refer to the same insect. The species has a wide range, being found in all the Australian States except Tasmania. One subspecies has been described from the Monte Bello Islands and I now add another from Mt. Kosciusko.

CANDALIDES HEATHI HEATHI Cox.

Waterhouse and Lyell, *Butterflies of Australia*, 1914, p. 78, figs. 382, 383.

Male. Upper side: Forewing bronze brown; termen very narrowly brown-black; cilia brown-black, with tips whitish. Hindwing bronze-brown; costa and termen narrowly brown-black, with tips whitish.

Under side: Forewing silky grey-white; termen with a series of small, sometimes minute, dots, black. Hindwing silky grey-white; termen with a series of dots, black.

Female. Upper side: Forewing dull brown; an obscure central area reaching base and dorsum, dull bluish-purple; termen very narrowly brown-black; cilia brown-black, at tips whitish. Hindwing dull brown, tinged bluish-purple; costa and termen obscurely brown-black; cilia brown-black, at tips whitish.

Under side as in male.

I have only four males and one female from near Adelaide and these show the under side tinged with blue as mentioned by Cox. Specimens from Sydney only have blue towards the base of the wings, if at all. Probably if long series were obtained from Adelaide and in good condition it would be possible to separate Sydney specimens from them. My specimens from S. W. Australia are all smaller and, though not in the best condition, seem to indicate another race, but I await more material. These have a much darker under side than typical specimens. At present I would limit the typical form to S. Queensland and south along the east coast, the southern coast and the western coast to Geraldton and, as additional localities to those in "The Butterflies of Australia", I have *heathi* from Clermont, Q. (Sept.), Belmont, Q. (Oct.), Eidsvold, Q. (Jan.), near Adelaide (Nov., Dec., Jan.), Busselton, W.A. (Jan.), Perth, Kojarina, W.A. (Sept.), Moonyoonootha, W.A. (Sept.). I have only found the larvae of this race feeding upon two different species of introduced *Plantago*, but Mathew records its food plant as *Westringia rosmariniformis*, around which I have often seen the insect flying. The pupal duration during December and January is 16 to 19 days.

CANDALIDES HEATHI AERATA Montague.

Proc. Zool. Soc. London, 1914, 644.

This form is confined to the Monte Bello Islands and is much smaller than the typical race; it is generally darker above and on the under side of both wings; the terminal spots are more distinct than in the typical race. I have two males and one female from the type locality, caught in June.

CANDALIDES HEATHI ALPINA, n. subsp.

Male. Upper side slightly paler than the typical race, with the terminations of the veins very much paler brown, giving the wings a rayed appearance.

Under side grey-brown with two terminal black dots in the forewing and six in the hindwing.

Female. Upper side slightly paler than the typical race with the bluish-purple restricted to a small basal portion.

Under side grey-brown with six terminal black dots in both wings, those of the hindwing being distinctly larger.

The very distinctive under side at once separates this race, as it is so different from the silky white of the typical race. I have one male, which has a distinct pale brown border within the terminal brown-black lines to the wings above. The terminal spots on the under side of the forewing vary very much in size, and in number from two to six, though I have only one male with six and in one female they are so small as to be indistinguishable without a lens.

Holotype male, Mt. Kosciusko, 5,000 feet, 10th Dec., 1921, and during the previous five days the allotype female and six perfect paratype males and two perfect paratype females were caught, together with several worn specimens. I found the species always flying where a species of *Plantago* was growing. I also have three specimens caught in November and one in January at Mt. Kosciusko.

Candalides cyprotus Olliff.

Chrysophanus cyprotus Olliff, Proc. Linn. Soc. N. S. Wales, 1885, 716.—*Holochila purpurea* Grose Smith and Kirby, *Rhop. Exot.*, pt. 39, 1897, p. 7, Pl. x, figs. 11 and 12.

Olliff described both male and female from Katoomba, N.S.W., caught in September and the two specimens named as such in the Australian Museum are undoubtedly his types. In the "Rhopalocera Exotica" the male only is described and figured from Sydney and Moreton Bay. I have frequently caught specimens of the species in Sydney and they agree with those I have taken at Katoomba and also with my Brisbane specimens. In Sydney the species is only taken in the spring, but in Brisbane it is found again in the autumn.

The pupal duration of this species is remarkable. In March, 1924, Mr. L. Franzen found a batch of pupae on One Tree Hill, Brisbane. He sent me two of these which produced males on 30th August, 1924, and 4th November, 1924. His own pupae produced males and females during September and October, 1924. On 8th December, 1924, he opened a pupa and found it still alive and another he opened on 8th February, 1925, was still alive and some emerged during the following months. In July, 1925, he gave me his two remaining pupae, one of which produced a male on 29th September, 1925, so it had remained as a pupa for at least 18 months.

Candalides erinus Fabricius.

I have taken this species in worn condition in April at Port Macquarie, which extends its southern limit considerably.

Adaluma urumelia Tindale.

Trans. Roy. Soc. S. Aust., 1922, 537, Pl. xxxi.

This species is known from two males from the Roper River (March), in the South Australian Museum and a male in the National Museum, Melbourne, from King River, N. Aust. (4th Jan., 1915).

Pseudodipsas digglesi Hewitson.

The type undoubtedly came from Brisbane, as Diggles lived there and Hewitson received the species from him. My Brisbane dates are June to September and I also have it from Yeppoon in July and near Cairns in February.

MILETUS DELICIA DELICIA Hewitson.

Hewitson described this species from a specimen in the Grose Smith Collection from Australia. He does not mention the sex, but his description seems to indicate a female, especially as he gives the size as $2^1/_{20}$ inch, which is very large, much larger than my largest female which is from New South Wales. The races *delos* from Victoria and *duaringae* from near Rockhampton are both smaller than the race *delicia*. Druce (*Trans. Ent. Soc. London*, 1891, 186, Pl. x, figs. 6, 7) says that only three specimens were known to him, the type, a male in the Hewitson Collection from New South Wales and a female in the British Museum from Moreton Bay. Druce figures a male which agrees with the Brisbane race and I suggest that Brisbane be considered the type locality. In July, 1919, I found several larvae on Stradbroke Island feeding on *Acacia Cunninghami* which produced butterflies from the end of September to the middle of December, with a pupal duration of about one month. Mr. E. J. Dumigan also sent me a male from Killarney, Q., taken in January.

MILETUS DELICIA DUARINGAE Waterhouse.

PROC. LINN. SOC. N. S. WALES, 1903, 167; *Butterflies of Australia*, 1914, 85, fig. 231.

When I described this in 1903 as a variety from Duaringa, Q., only a single male was known. In September and October, 1923, Mr. A. N. Burus secured a series at Westwood, which is no great distance from Duaringa. These specimens show that *duaringae* must be considered the northern race of *delicia* and not an aberration. The males have the metallic areas on the upper side much bluer and much more extended than in those from Brisbane, and on the under side the ground colour is much paler than in Brisbane specimens and the coloured markings of the forewing are yellower than those of the hindwing. The under side of the forewing has often three black spots whereas the type has only two. In the females the metallic areas are not much more extended than in *delicia* but they are a much paler metallic blue, the irregular tornal orange-red spot extends as a terminal band towards the apex, in one specimen almost reaching it, and in that same specimen a similar but narrower and paler band is found on the forewing. The under side is as in the male, but ground colour somewhat darker.

The holotype male from Duaringa is in Mr. G. Lyell's Collection and I have males and females from Westwood in January, September and October, and Mr. Burns has other specimens from the same locality.

MILETUS HALYAETUS Hewitson.

Hewitson's locality for this species is Swan River, W.A. Until recently I only knew this species from Geraldton, but Mr. J. Clark gave me a pair he had caught at Perth. I visited the spot with him in August, but we saw none, nor was the species on the wing at Geraldton during the same month, and I think that October would be the best month for the species. I cannot see any striking differences between my Perth pair and my Geraldton series, but should a longer series from Perth show sub-specific differences, *Polyommatus uranites* Meyrick, described from Geraldton specimens, will be available for the northern race. I also have specimens from the Peron Peninsula in September and October.

MILETUS EPICURUS Miskin.

The types of this species are in the Queensland Museum, from Brisbane, and Mr. L. Franzen has recently taken it at Burleigh Heads. I caught a male at Coff's Harbour in September, which is a new record for New South Wales.

MILETUS APOLLO Miskin.

Ann. Q'land Museum, i, Supplement, 1891.

Miskin described this handsome species from a male (he thought it might be a female) found between the leaves of a book, where it had been preserved with other butterflies. The locality was on the Herbert River and probably near Ingham and the holotype is now in the Queensland Museum, where I have examined it. Owing to the treatment it had received, it is in very poor condition, but is easily recognizable.

This specimen remained the only one known until 1907, when I received several from Cape York from the late H. Elgner. Later on Mr. F. P. Dodd took the species in the Cairns district, where it has also been taken by Messrs. A. N. Burns and C. H. Borch. On receipt of specimens from Mr. Dodd and Mr. Burns I found that my Cape York specimens differed very considerably from them. Mr. Burns kindly compared his Cairns specimens with the holotype in the Queensland Museum and found that they agreed with it much better than the specimens from Cape York.

MILETUS APOLLO PHOEBUS, n. subsp. Plate xxv, figs. 6, 7.

Miletus apollo Waterhouse and Lyell, *Vict. Nat.*, xxvi, 1909, 111; *Butterflies of Australia*, 1914, 86, figs. 880, 881.—*Hypochrysops apollo*, Grünberg in Seitz Macrolepidoptera, p. 844, Pl. 145*b*.

As this race has already been very lengthily described and figured it is not necessary to repeat the descriptions. The males are all much deeper in colour on the upper side than in the typical race and the black costal band of forewing does not extend so far basad and shows a slight downward extension at the end of cell. The underside is well illustrated in the coloured figures that are given and is very much darker and richer than in the typical race, especially the apex of the forewing and the lower half of the hindwing. The same remarks apply to the upper side in the females as in the males, with the addition that the broad black costal band of the hindwing never reaches the apex, but is usually separated from it by a broad band of colour, though in one of my specimens this is very narrow. My most heavily marked female has fewer dark markings than any of the females I have seen of the typical race. The underside is as in the male.

Loc.—Cape York (Jan., Mar., May, June, August to December), Prince of Wales Is. (June). I have figured the holotype male and allotype female from Cape York in my collection and I have also six paratype males and four paratype females from Cape York.

The late H. Elgner sent me a male that had emerged from a pupa he found at Cape York. He wrote that the pupa was found lying loose in a hole in a bulbous epiphyte, which had a substance something like a potato, and from the bulb grew a stalk with leaves. The hole in which the pupa was found had been eaten, as were also the leaves, but he was uncertain if the larva fed on bulb or leaves or both. He sent me the empty pupal case, which is ovoid in section and rather elongate and it shows only very faint brown spots.

MILETUS APOLLO APOLLO Miskin. Plate xxv, figs. 8, 9, 10.

Male. Upper side: Forewing orange; apex and termen very broadly black; cilia orange. Hindwing orange; termen with a narrow black line and with long black scales at the terminations of the veins, especially towards the tornus; cilia orange. Under side as in the race *phoebus*, but the elongated spots below the apex of the forewing and the markings of the lower half of the hindwing almost

white and an additional large white patch at the end of the cell of the forewing; cilia pale orange, at terminations of veins black.

Female. Upper side: Forewing orange, paler than in male, apex and termen very broadly black; cilia pale orange. Hindwing orange, with a very broad black costal band always reaching the termen at apex; termen with a narrow black line, widest at terminations of the veins; a variable subterminal black band varying from the irregular band of Plate xxv, fig. 9 to the broad band of fig. 10; cilia pale orange.

Under side as in the male, but markings whiter and the white patch at end of cell of forewing smaller; in the forewing the reddish-brown band extends irregularly to the tornus; cilia pale orange, at terminations of veins black.

I have in my collection three males and three females from Mr. Dodd and Mr. Burns, and I have before me, besides these six specimens, six males and four females belonging to Mr. A. N. Burns.

Whilst the males of *phoebus* are very constant on the upper side, these males vary somewhat in colour, being an orange-vermilion to an orange-red, but never the very rich colour of the Cape York race. In some specimens there is a dark patch of scales on the termen near the apex of the hindwing and indications of a black subterminal band of black spots, more noticeable near the tornus. In the females the greatest variation is shown on the upper side of the hindwing; this difference is shown in the figures which are from specimens given me by Mr. Dodd. The specimens belonging to Mr. Burns show a gradation between these figures.

Besides the different shade of colour of the upper sides and the very distinct under sides, this race may be distinguished from *phoebus* by having a black terminal line in both sexes, and in the female the black costal border reaching the termen on the hindwing above.

The localities for this race are Herbert River (Miskin), Cairns District (F. P. Dodd), Meringa, near Cairns (January, February and October; A. N. Burns).

Mr. A. N. Burns, who has bred this fine species, supplies me with the following notes: Larvae when fully grown about an inch long, of the usual Lycaenid shape. In colour they are translucent grey with obscure pale brownish spots which almost coalesce in the lateral areas. Dorsal line interrupted, brownish-green. Whole dorsal surface roughened, lateral margins crenulate. Ventral surface pale greenish. Both extremities depressed. Larvae live in a cellular bulbous epiphyte, on which they feed, as well as on the leaves growing from the bulbs. These bulbs, even if they do not contain larvae or pupae, are the home of a species of small brown ant (*Pheidole*) which, however, does not attend the larvae in the same way as ants attend the larvae of *Ogyris*. Pupa about five-eighths of an inch long, found attached within the eaten-out portions of the bulbs. In colour they are pale yellowish-brown, with the whole surface covered with minute dark brown spots.

Mr. Burns informs me that the epiphyte belongs to the Rubiaceae and Mr. E. Cheel identifies it as *Myrmecodia tuberosa*. It grows on *Tristania*, *Melaleuca* and other forest trees.

The pupal shells given me by Mr. Burns show the brown markings much more plainly than the one I have of the race *phoebus* from Cape York.

Mr. C. H. Borch (*Vict. Nat.*, xliii, 1926, 214) has given a short account of the life history of this butterfly. He says that the bulbs of the epiphyte were honeycombed with tunnels made by small black ants and when opened had the appearance of a sponge. Some of the older bulbs examined were little more than shells, having been eaten out by generations of larvae. A larva pupated on 25th January

and a male emerged on 12th February. He remarks: "It is remarkable that in travelling through the tunnels of the bulb, these butterflies do not injure their delicate wings. Apparently immediately on emergence from the pupa, they crawl towards the light, development of the wings being checked until the insects are out in the open".

When I was returning from Perth in September, 1926, I had a number of pupae of *Xenica* and *Ogyris* in a small cardboard box. I found that the *Xenica* always emerged satisfactorily, but the *Ogyris* never properly expanded and were evidently trying to reach the light. After this experience for two days, I examined the box every quarter of an hour in the train and as soon as an *Ogyris* had emerged, it was at once transferred to a large glass-bottomed pill box and so all subsequent emergences produced perfect insects. I had a similar experience with a female *Pseudodipsas brisbanensis*. The butterfly was placed in a large pill box in hopes that it would lay eggs. The box, which unfortunately had a hole in the lid, was placed glass side down on a window sill; when examined some hours afterwards, the wings of the butterfly were all broken in its endeavours to escape through the hole, which was only just large enough to allow the body of the insect to get through.

MILETUS APOLLO WENDISI Bethune-Baker.

Hypochrysops wendisi B.-Baker, *Ann. Mag. Nat. Hist.* (8) iv, 1909, 184, Pl. 7, fig. 5.

This is certainly another race of *M. apollo*, the holotype being a female in the collection of Sir George Kenrick from Wendisi, Geelvink Bay, New Guinea. No doubt other races will be found in the coastal parts of New Guinea, but the species is certainly a rare one and its habits are such that it is not easy to secure.

MILETUS BYZOS Boisduval.

Lycaena? byzos Bois., *Voy. Astrolabe*, Lep., p. 81, 1832.

This name has passed unnoticed and almost forgotten since it was first proposed, except that Miskin considered the species the same as *xanthospilos* Hübner. This is unlikely as, under the name of *hübneri*, *xanthospilos* was described by Boisduval immediately preceding his description of *byzos* in the same work.

Boisduval describes *byzos* as follows:—

"Alis fuscis; anticis macula discoidea crocea; posticis fuscis fascia postica crocea; omnibus subtus subluteo-griseis obscuriori punctis".

"Ailes d'un brun noirâtre; les supérieures, avec une tache discoidale d'un jaune safran; les inférieures, avec une bande postérieure de la même couleur: dessous des quatre d'un gris lavé de jaunâtre, ponctué d'une couleur plus foncée.

"Il est un peu petit que *Hubneri*.

"Environs de port Jackson".

I have been informed by the authorities at the Paris Museum that the type of *byzos* could not be found there, but at the same time I was sent a photograph of the specimens Boisduval called *hübneri* and these were undoubtedly *xanthospilos*.

The first point I would make then, is that *byzos* cannot be *xanthospilos*, for Boisduval would not have described the same insect under two consecutive names, besides which, the description does not fit *xanthospilos*.

A free translation of Boisduval's Latin and French description is as follows:—

Wings blackish-brown; forewings with a discal saffron-yellow spot; hindwings with an outer band of the same colour; all the wings, on the under side, grey

tinged with yellowish, with deeper coloured spots. A little smaller than *hübneri* (= *xanthospilos*). From Port Jackson.

The only species to which this description could apply is the female of *Miletus hecalius* Miskin, described from Victoria. In a letter, the late Hamilton H. Druce, some years ago, expressed the opinion that I was probably correct in making this suggestion. Whilst *hecalius* was only known from Victoria, it would have been rash to insist that it was the same as *byzos*, but the species has been taken freely near Sydney, and within a mile of Neutral Bay, where the "Astrolabe" anchored from 2nd to 19th December, 1826, both larvae and butterflies have been taken, and only a few years ago the food-plant was growing close to the water's edge. Though, as a general rule, Sydney specimens of *hecalius* are not smaller than *xanthospilos*. I have caught some considerably smaller and these are without a central orange spot on the upper side of the hindwing, as is usually the case. Further, though bred specimens are rich yellow on the under side, captured specimens are much paler, and could easily be termed "grey tinged with yellowish". Though many specimens are heavily spotted on the under side, in others these red spots are small and obscured and in captured specimens do not strike the eye as they do in bred specimens.

As there are certain recognizable differences between the Sydney specimens and those from Victoria, two races are distinguishable.

Miletus byzos byzos Boisduval.

Miletus hecalius Waterhouse and Lyell, *Butterflies of Australia*, 1914, 87, fig. 217.

Male. Upper side: Forewing rich purple; costa narrowly, apex and termen, broadly black; cilia dull black with tips greyish. Hindwing rich purple; costa with termen broadly black; a tornal streak usually reaching along the two branches of the cubitus, dull red, cilia grey.

Under side: Forewing yellow; dorsum grey; a bar across middle of cell, a bar at end of cell, and a discal band, red edged black and metallic green; termen orange-red with a central series of dots black, dusted metallic green. Hindwing dark grey-brown; bands typical, red narrowly-edged metallic green; termen broadly red, with an interrupted central line, metallic green.

Female: Upper side: Forewing brown-black; a central patch, reaching base by a narrow streak, orange; cilia brown with tips grey. Hindwing brown black; a variable spot at end of cell (sometimes absent), orange; a narrower terminal band, orange-red, this colour extending basad along the branches of the cubitus and median; cilia grey.

Under side: Forewing rich yellow; dorsum grey, markings as in male, but paler. Hindwing rich yellow; bands and spots as in male but usually brighter, rarely as large as in the male, often much smaller, especially on the hindwing on which some may be absent and others only faintly indicated.

Localities.—Sydney (Mosman and Como; Sept. to April), Mittagong (November), Tathra (November).

Males of this race are very constant and amongst a hundred specimens I have seen there are no marked differences. On the other hand the females are very variable, especially on the underside. I have good specimens that only show very faint markings on the underside of the hindwing.

The larvae of this race feed upon *Pomaderris lanigera*. The pupal duration varies from 13 to 38 days according to the time of the year the butterflies emerge.

Those that emerge from December to March take 13-15 days, October and November 23 to 29 days, and September up to 38 days.

MILETUS BYZOS HECALIUS Miskin.

Hypochrysops hecalius Miskin, *Trans. Ent. Soc. London*, 1884, 94, female; PROC. LINN. SOC. N. S. WALES, 1888, 1516, male; Anderson and Spry, *Vict. Butt.*, 1894, 96, figured.—*Miletus hecalius* Waterhouse and Lyell, *Butterflies of Australia*, 1914, 87, figs. 218, 226, 227 (not fig. 217).

The upper side in the males differs from the typical race in that the purple is slightly more extensive and lustrous; the tornal streak on the hindwing is brighter and larger and, besides extending somewhat along the veins, in two specimens reaches the apex as a narrow red terminal line. On the under side this sex is paler than in the typical race and the bands and spots decidedly smaller. On the upper side in the female the central spots are yellow rather than orange and the spot of hindwing is larger than in any of my specimens of the typical race. The terminal band of the hindwing is orange to orange-red and wider than in Sydney specimens. On the under side the colour is as described by Miskin, chrome-yellow, and the whole under side has a much duller appearance than the typical race.

Described from Victoria, the holotype female is now in the Queensland Museum and the allotype male in the South Australian Museum. It is known from Wandin, Narracan, and Gisborne (January) and Toora (December); four males and five females are in my collection.

THYSONOTIS HYMETUS TAYGETUS Felder.

Described by Felder from Australia and Fiji, the latter locality being erroneous. I consider typical *taygetus* to be the most southern Australian race and I have extended its range south considerably for I have taken it at Port Macquarie in April, at Toronto, Lake Macquarie in April, and one female at Narrabeen, near Sydney, in December. A pupa found at Southport, Q., in July emerged in 15 days, whilst larvae from Port Macquarie that pupated in Sydney at the end of April emerged in 20-28 days.

NACADUBA PALMYRA TASMANICA Miskin.

The holotype male is in the Queensland Museum and, as pointed out by Miskin (*Ann. Q'land Museum*, 1, 1891, 59), the locality "Tasmania" is incorrect, so it is advisable to accept Cairns, given by Miskin in 1891, as the type locality. I have taken a single male at Toronto, Lake Macquarie, in April, the southern-most record known.

NACADUBA ANCYRA FLORINDA Butler.

The type of this species in the British Museum is from the Loyalty Islands; if this locality is correct it is unlikely that our southern subspecies of *ancyra* is the same. At present I do not wish to make any alteration, but would record the race we call *florinda* at Stanwell Park in January (G. M. Goldfinch). The food plant, *Trema aspera* is growing there. I found larvae on this plant at Port Macquarie in April and they pupated by the end of the month and emerged in 41-48 days.

ZIZEERIA ALSULUS Herrich-Schaeffer.

In April I caught a specimen of this species on the road between Gloucester and Kranback; this is a new record for New South Wales.

Zizula gaika attenuata Lucas.

Mr. G. H. Wyld has taken two or three specimens of this species in March at Beecroft, near Sydney, a record that extends its range south from the Manning River.

Neolucia agricola agricola Westwood.

Several specimens have been taken at Mt. Kosciusko in December and January at 4,000-5,000 feet. As *N. hobartensis* was found there at the same time and place, there is no possibility of their being races of the same species.

Neolucia hobartensis hobartensis Miskin.

The type is in the Queensland Museum, from Hobart. On a recent visit to Hobart, I found that this species did not occur below 3,000 feet, so the type locality is better defined as Mt. Wellington, near Hobart. At Mt. Kosciusko it occurs up to 7,000 feet. I also have it from Cradle Mountain and Underwood (2,800 feet), Tasmania, both in January.

Neolucia hobartensis monticola Waterhouse and Lyell.

This race was abundant at Barrington Tops in January and February; by beating I secured several larvae feeding on the flower buds of an *Epacris*; their pupal duration was 11-12 days.

Neolucia mathewi Miskin.

The type is in the Queensland Museum, from Sydney, where the species is strictly a coastal one and found in abundance near the food plant *Monotoca elliptica* in September and October. I have never seen the species north of Port Stephens, where it was very plentiful in October; it was also common at Narooma in the same month. Mr. Ian Harman has recently taken it at Underwood in Tasmania in January, which is quite a new record. My greatest surprise was taking it at Blackheath in November, 1922, where six specimens were seen and captured flying round a plant very similar to the coastal food plant. The pupal duration of Sydney specimens is 16-21 days.

Pseudalmenus chlorinda Blanchard.

The first mention of this butterfly is in the "List of the specimens of Lepidopterous Insects in the British Museum" (1847, part ii, p. 28), by E. Doubleday. Here Doubleday records, under the name *Ialmenus myrsilus*, eight specimens from Van Diemen's Land, one presented by Rev. A. Beaufort and four from the collection of Mr. Children, who had been a former Curator of Zoology at the British Museum. No description was given. As *Thecla chlorinda*, it was figured from Tasmania by Blanchard on the plates of the "Voyage Pôle Sud". We are told on page 2 of Volume 4 of the text of this voyage which was published in 1853, that the plates were published several years before the text, so the latest possible date for the plate must be 1851. The next mention is as *Thecla myrsilus* in the "Genera of Diurnal Lepidoptera", where it is figured from Van Diemen's Land, but again no description is given. The next species listed in the "Genera" is *Thecla chlorinda*, so the figures in the "Voy. Pôle Sud" must have been before that of the "Genera". Up to this time no description under either name had been given. The first description is that on page 401 of the "Voyage Pôle Sud", Vol. iv, 1853, where the sexes are described and *Thecla myrsilus* of the "Genera" sunk as a synonym. This history is sufficient to show that *myrsilus* must be sunk as a

direct synonym of *chlorinda* as I have already pointed out (These Proceedings, 1912, 701). In Seitz Macrolepidoptera, however, the name *myrsilus* is used. Three races have been described and I now add a fourth.

Pseudalmenus chlorinda chlorinda Blanchard. Plate xxv, figs. 1-4.

Thecla chlorinda Blanchard, *Voy. Pôle Sud*, Pl. 3, figs. 15-18 (ante 1853), description vol. iv, 1853, 401.—*Thecla myrsilus* Doubleday, *Gen. Diurn. Lep.*, 1852, Pl. 75, fig. 3; Waterhouse and Lyell, *Butterflies of Australia*, 1914, 113, figs. 863, 864.

Blanchard figured both sexes and his male is very close to the figure I give on Plate xxv, fig. 1, which is from Launceston. Figure 863 in the *Butterflies of Australia* is also from Launceston and is also close to Blanchard's figure of the male. I figure (Plate xxv, fig. 2) a female from Launceston without any central orange patch on the upper side of the hindwing; this figure is much duller above than Blanchard's figure of the female, which has an irregular central orange patch on the upper side of the hindwing. Figure 864 of the *Butterflies of Australia* is much nearer Blanchard's figure of the female. The most highly coloured specimens I have from Launceston are shown on Plate xxv, fig. 3 (male) and fig. 4 (female), the latter being very close to the figure given in the "Genera", which is that of a female. I have from Launceston a long series of this race (the South Australian Museum also has a fine series from the same place) and in both sexes they pass gradually from the extremes of both sexes I have figured on Plate xxv. My figures of the under sides show that the black markings are very variable in extent.

Though I consider that the types came from near Hobart, I have used Launceston specimens for illustration as I have no females from Hobart.

From Snug River, near Hobart, I have but eight males, all of which agree very closely with Plate xxv, fig. 3, and all have the under side marked as in that figure; they were taken in September and October, whilst my Launceston specimens were taken from October to December and are chiefly from a large batch of pupae found by the late F. M. Littler. This race feeds on species of *Acacia*.

Pseudalmenus chlorinda zephyrus Waterhouse and Lyell.

Ialmenus myrsilus. Anderson and Spry, *Victorian Butterflies*, 1894, 100, female figured.—*P. chlorinda zephyrus*. Waterhouse and Lyell, *Butterflies of Australia*, 1914, 114, figs. 436, 437, 438.—*Ialmenus myrsilus zephyrus* Seitz in Seitz Macrolepidoptera, Pl. 998, fig. 160*b*.

The holotype ♂ and allotype ♀ of this race from Gisborne, Vict., are in Mr. G. Lyell's collection, taken in September. I have also specimens taken at Gisborne where they feed on *Acacia melanoxylon*.

In this race the males and females are usually more highly coloured on the upper side than in Plate xxv, figs. 3 and 4, the female showing much more orange basad of the black cell bar of the forewing. On the under side in both sexes, the black markings are usually as in Plate xxv, fig. 3 and only rarely approach those of fig. 1.

This race is confined to Victoria and has recently been taken at Moe in September, October and November.

PSEUDALMENUS CHLORINDA CHLORIS Waterhouse and Lyell.

Butterflies of Australia, 1914, 114, figs. 870, 871.

The holotype male, allotype female and paratype male from Katoomba (October) are in my collection. The coloured figures already given show this race very well, which is brighter on the upper side than *zephyrus* and a beautiful silky white on the under side. Mr. G. M. Goldfinch has recently taken a female of this race at Mittagong in November.

PSEUDALMENUS CHLORINDA BARRINGTONENSIS, n. subsp. Plate XXV, fig. 5.

Male. Upper side: Forewing as in *chloris*. Hindwing with the subterminal coloured band much enlarged and extended to join the central coloured patch.

Under side silky white, with the black and red bands as shown in the figure.

This fine race is known from a single specimen which was found dead on the snow near Edwards Hut, Barrington Tops, on 30th October, 1922, by the late John Hopson, Junr. I failed to find any trace of it there in January, 1925. This specimen shows a further increase of colour from the southern races. A Mr. Schraeder told me some years ago that he had taken specimens of a *Pseudalmenus* near Hanging Rock, but had disposed of them. They would probably be this race. The holotype male which is at present unique is in my collection.

EXPLANATION OF PLATE XXV.

1. *Pseudalmenus chlorinda chlorinda*, ♂, Launceston, Tas.
2. *Pseudalmenus chlorinda chlorinda*, ♀, Launceston, Tas.
3. *Pseudalmenus chlorinda chlorinda*, ♂, Launceston, Tas., 9th Nov., 1917.
4. *Pseudalmenus chlorinda chlorinda*, ♀, Launceston, Tas., 2nd Nov., 1917.
5. *Pseudalmenus chlorinda barringtonensis*, holotype ♂, Barrington Tops, N.S.W., 30th Oct., 1922.
6. *Miletus apollo phoebus*, holotype ♂, Cape York, Q., 2nd Oct., 1910.
7. *Miletus apollo phoebus*, allotype ♀, Cape York, Q., 18th Sept., 1910.
8. *Miletus apollo apollo*, ♂, Meringa, Cairns, Q., 16th Febr., 1926.
9. *Miletus apollo apollo*, ♀, Cairns District, Q.
10. *Miletus apollo apollo*, ♀, Cairns District, Q.

Figures from specimens in Waterhouse Collection.